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Claims:

Claim 1-15 (previously cancelled)

Claim 16-27 (previously cancelled)

28 (amended). An Internet based wireless communication system (IBWCS), comprising:

one server means running on Internet,

a plurality of wireless Access Points (APs) with Internet connection and providing wireless networking access,

a plurality of Personal Mobile Access Device (PMAD) with wireless networking capability for getting wireless Internet access via said AP,

Wherein the APs has dedicated port for Internet connection,

Whereby the APs communicating with the server means via Internet,

Wherein said PMAD is personal mobile communication device with user and media interfaces, and wireless networking means to communicate with said APs,

Whereby the PMAD access Internet wirelessly through the AP and communicate with the server means via Internet,

Wherein the [server means] APs enable the PMADs to join communication over Internet connection with server means;

Whereby the PMADs access Internet wirelessly through the APs and join the server means for communication among each other of the PMADs,

Whereby the server means enables and, controls the PMAD to PMAD communication over Internet,

Wherein said IBWCS forming virtual communication paths among said PMADs and said server means over the Internet,

Whereby messages are communicated among said PMADs and server means via said virtual communication paths,

Whereby being a key element in said virtual communication paths said server means guarantees the PMAD to PMAD communication over Internet without message loss by storing and resending communication message to ensure message delivery, and

Whereby the PMADs communicating with each other via the server means and Internet.

29 (previously presented) The system of claim 28 wherein one of said PMAD can roam among the wireless access of said APs around Internet and communicate with said server means and other PMADs.

30 (amended). An Internet based wireless communication system, comprising:

a Internet based message communication network (TDMN) including server means connecting to Internet and TDMN operation function means;

a plurality of wireless Access Points (APs) with Internet connection and providing wireless networking access;

a plurality of Personal Mobile Access Device (PMAD) with wireless networking capability for getting wireless Internet access via said AP,

Wherein the APs has dedicated port for Internet connection,

Whereby the APs communicating with the TDMN via Internet,

Wherein said PMAD is personal mobile communication device with user and media interfaces, and wireless networking means to communicate with said APs,

Wherein said PMAD has multimedia and data communication function means corresponding with said TDMN operation function means,

Wherein said APs [the TDMN operation function means] enables the PMADs to join the TDMN for communication over Internet connection;

Whereby the PMAD access Internet wirelessly through the AP and join the TDMN for communication among each other of the PMADs over Internet,

Whereby the TDMN and the APs providing communication among the PMADs over Internet, and

Wherein said TDMN forming virtual communication paths among said PMADs over the Internet,

Whereby messages are communicated among said PMADs and TDMN via said virtual communication paths,

Whereby being a key element in said virtual communication paths said server means of the said TDMN guarantees the PMAD to PMAD communication over Internet without message loss by storing and resending communication message to ensure message delivery, and

Whereby the TDMN enables, controls, and guarantees the PMAD to PMAD communication over Internet without message lost.

31 (previously presented). The system of claim 30 wherein said PMAD is performing time distributed two-way message communication by sending a complete source of voice, video and/or other file or message into a group of message units over Internet to the TDMN, and, said TDMN guarantees said a group of message units to be completely received at receiving PMAD:

whereby said TDMN stores the undelivered message units when there is interruption of Internet connection of receiving PMAD, and

whereby said TDMN continues delivering said undelivered message when the interrupted communication of said receiving PMAD to said TDMN recovers.

32 (previously presented) The system of claim 30 wherein said TDMN manages the communication of said PMADs with different quality of service level.

33 (amended) An Internet based wireless communication system comprising:

a Internet based message communication network (TDMN) including server means connecting to Internet and TDMN operation function means;

a plurality of wireless Access Points (APs) with Internet connection and providing wireless networking access;

a plurality of Personal Mobile Access Device (PMAD) with wireless networking capability for getting wireless Internet access via said AP, [and client operation function means corresponding with said TDMN operation function;]

Wherein the APs has dedicated port for Internet connection,

Whereby the APs communicating with the TDMN via Internet,

Wherein said PMAD is personal mobile communication device with user and media interfaces, and wireless networking means to communicate with said APs,

Wherein said PMAD has multimedia and data communication function means corresponding with said TDMN operation function means,

Wherein said APs enables the PMADs to join the TDMN for communication over Internet connection;

Whereby the PMAD access Internet wirelessly through the AP and join the TDMN for communication among each other of the PMADs over Internet,

Whereby the TDMN and the APs providing communication among the PMADs over Internet, and

Wherein said TDMN forming virtual communication paths among said PMADs over the Internet,

Whereby messages are communicated among said PMADs and TDMN via said virtual communication paths,

Whereby being a key element in said virtual communication paths said server means of the said TDMN guarantees the PMAD to PMAD communication over Internet without message loss by storing and resending communication message to ensure message delivery, and

Whereby the TDMN enables, controls, and guarantees the PMAD to PMAD communication over Internet without message lost.

wherein said TDMN has server means forming three-level hierarchical domain system for managing communication, comprising:

a host domain, a control domain and an access domain,

wherein access domain is the bottom level of said hierarchical domain system, said access domain comprising a plurality of Access Server means and one Control Server means managing said Access Server means,

wherein control domain is the second level of said hierarchical domain system, said control domain comprising a plurality of said Control Server means and one Node Server means managing said Control Server means, and

wherein host domain is the core of said TDMN, comprising a plurality of said Node Server means and one Host Server means managing said Node Server means.

34 (previously presented). The system of claim 30, wherein said a plurality of PMADs can perform group communication.

35 (previously presented). The system of claim 30 wherein one of said PMAD can roam among the wireless access of said APs around Internet and communicate with said server means and other PMADs.

36 (amended). An Internet based wireless communication system, comprising:

a Internet based message communication network (TDMN) including server means connecting to Internet and TDMN operation function means;

a plurality of wireless Access Points (APs) with Internet connection and providing wireless networking access ,

a plurality of Personal Mobile Access Device (PMAD) with wireless networking capability for getting wireless Internet access via said AP,

a time distributed message process function means for package source data into multiple time distributed message units (TDMU) to communicate over Internet

Wherein the APs has dedicated port for Internet connection,

Whereby the APs communicating with the TDMN via Internet,

Wherein said PMAD is personal mobile communication device with user and media interfaces, and wireless networking means to communicate with said APs,

Wherein said PMAD has multimedia and data communication function means corresponding with said TDMN operation function means,

Wherein said APs [the TDMN operation function means] enable the PMADs to join the TDMN for communication over Internet connection;

wherein said TDMU is communication message unit of any original source information for communication among PMADs and said TDMN via [a base communication message unit of communication protocol means constructed on top of TCP/IP protocol and] Internet,

Whereby the PMAD accesses Internet wirelessly through the AP and join the TDMN for communication among each other of the PMADs over Internet,

Whereby the TDMN and the APs providing communication among the PMADs over Internet connection

Whereby the TDMN enables, controls the PMAD to PMAD communication over Internet,

Wherein said TDMN forming virtual communication paths among said PMADs over the Internet,

Whereby messages are communicated among said PMADs and TDMN via said virtual communication paths,

Whereby being a key element in said virtual communication paths said server means of the said TDMN guarantees the PMAD to PMAD communication over Internet without message loss by storing and resending communication message to ensure message delivery, and

Whereby PMAD doing message communication via Internet and TDMN with TDMU means.

37 (previously presented). The system of claim 36 wherein said PMAD comprising:

means to convert data resource to be transferred in to TDMU,

means to convert the received TDMU into original data format, and

means to control the communication with TDMN and other PMAD of claim 36.

38 (previously presented). The system of claim 36 wherein said TDMU is a base communication message unit of a communication protocol means constructed on top of TCP/IP protocol and Internet to overcome information communication loss and/or low quality due to unstable Internet connection:

wherein a original message is packaged into a group of TDMUs be sent over Internet,

wherein a complete original message is able to be recovered as long as its complete belonging group of TDMUs is complete received, and

wherein TDMU set (a group of TDMUs) communication can be interrupted and resumed.

39 (previously presented). The system of claim 36 whereby said PMADs package source data of voice, video, other file and message into a group of TDMUs send across Internet via the TDMN for delivering to receiving PMAD, and, said TDMN guarantees said a group of TDMUs to be completely received at receiving PMAD:

whereby said TDMN stores the undelivered TDMUs when there is interruption of Internet connection of receiving PAMD, and

whereby said TDMN continues to deliver said undelivered TDMUs when the interrupted communication of said receiving PMAD to said TDMN recovers.

whereby the transmitting and receiving of said message units is controlled by the operation means of TDMN with time-distributed feature of store and change the speed of communication to overcome the Internet connection unstable and interruption during the communication of sending and receiving PMADs

40 (previously presented). The system of claim 36 wherein said TDMN manages the communication of said PMADs with different quality of service level.

41 (previously presented). The system of claim 36 wherein said TDMN has server means forming three level hierarchical domain system for managing communication, comprising:

a host domain, a control domain and a access domain,

wherein access domain is the bottom level of said hierarchical domain system, said access domain comprising a plurality of Access Server means and one Control Server means managing said Access Server means,

wherein control domain is the second level of said hierarchical domain system, said control domain comprising a plurality of said Control Server means and one Node Server means managing said Control Server means, and

wherein host domain is the core of said TDMN comprising a plurality of said Node Server means and one Host Server means managing said Node Server means.

42 (previously presented). The system of claim 36, wherein a plurality of said PMADs can perform group communication.

43 (previously presented). The system of claim 36 wherein one of said PMAD can roam among the wireless access of said APs around Internet and communicate with said server means and other PMADs.

44 (previously presented). Method of time distributed two-way mobile message communication over Internet according to claim 30 comprising:

operating TDMN of claim 30, wherein said TDMN operation means controlling and ensuring message exchange among said PMADs of claim 30,

connecting said APs of claim 30 to Internet and providing wireless Internet access for said PMADs,

having first of said a plurality of PMADs networking wirelessly to one of a plurality APs of claim 30 to establish Internet connection and then join said TDMN via Internet,

having second of said a plurality of PMADs networking wirelessly to one of said a plurality of APs to establish Internet connection and then join said TDMN via Internet,

establishing communication between said first and second PMAD via said TDMN,

communicating messages between said first and second PMAD via Internet and said TDMN,

communicating messages among said a plurality of PMADs of claim 30 via Internet and said TDMN,

storing undelivered message in the TDMN when receiving PMAD having Internet connection interruptions, and

continually delivering stored message to receiving PMAD when said receiving PMAD recovers Internet connection.

45 (previously presented). The method of claim 44, whereby TDMN establishing two virtual links (virtual control and security data link, virtual communication data link) to connect the sending and receiving among PMADs and said TDMN over Internet.

46 (previously presented). The method of claim 44 wherein a plurality of said PMADs joining said operating TDMN via Internet performing group communication among each other.

47 (previously presented). The method of claim 44 wherein said PMADs roaming among said a plurality of APs with wireless connection around the Internet for joining said operating TDMN for communication among each other of said PMADs

48 (previously presented). A method of internet based time-distributed two-way communication according to claim 36, comprising:

operating TDMN of claim 36, wherein said TDMN operation means control and ensure the message communication among PMADs control the access of a plurality of PMADs of claim 36,

connecting said APs of claim 36 to Internet and providing wireless Internet access,

having said a plurality of PMADs establishing wireless Internet connection to a plurality APs of claim 36 and joining said TDMN via Internet,

packaging an original voice, video, other file or message into a group of TDMUs in sending PMAD,

transmitting said a group of TDMUs to receiving PMAD via Internet and TDMN,

storing undelivered message in the TDMN and ensuring complete message received by receiving PMAD to overcome Internet speed unstable and interruptions, and

unpacking said a group of TDMUs to original format at receiving PMAD.

49 (previously presented). One Internet and wireless network based message communication system, comprising:

One wireless mobile access network based on wireless LAN technology;

One message communication server means (CS);

A plurality personal mobile access device (PMAD);

Wherein the wireless mobile access network is a plurality of wireless access points (AP) connecting to Internet,

Wherein the CS is a server operation means operating with Internet connections,

Whereby AP communication to said CS via Internet,

Whereby PMAD doing wireless mobile communication by wireless communication to AP,

Whereby PMADs communicate among other via said AP and Internet,

Whereby PMAD communicate with said CS via Internet,

Whereby said message communication system encode and packet original multimedia and/or data message in to multiple message units for transmission and receiving over the Internet,

Whereby said message communication system send and receive said message units among said PMADs and said message communication server system,

Wherein said message communication system forming virtual communication paths among said PMADs and said server means over the Internet,

Whereby messages are communicating among said PMADs and server means via said virtual communication paths,

Whereby being part of said virtual communication paths said CS guarantees the PMAD-to-PMAD communication over Internet without message loss by storing and resending communication messages to ensure message delivery, and

Whereby the CS controls and guarantees the message communication among said PMADs.